IN THE CLAIMS:

1. (Rejoined, Currently Amended) A method of fabricating a bone substitute material, the method comprising the steps of:

providing a foam material having an open cell structure,

distorting the shape of the foam material and holding the material in a distorted shape,

coating the walls of the cells of the foam material with a ceramic slip,

removing the foam material, and

sintering the ceramic slip to form a bone substitute material ~~that is approximately a positive image of the distorted foam material~~, wherein the bone substitute material comprises a porous sintered ceramic, the porous sintered ceramic being composed from hydroxyapatite or tricalcium phosphate, and the porous sintered ceramic having approximately the form of a positive image of an open celled foam material, the walls defining the cells within the material being hollow such that each wall defining cells has two wall ceramic material layers and a hollow cavity extending between the two wall ceramic material layers, wherein the cellular structure is orientated such that the cells are elongated, having ~~generally have a length in one direction greater than a length in a perpendicular direction~~ a length in one direction greater than their lengths in the two other perpendicular directions and wherein the bone substitute material has a breaking stress of more than 1 MPa.

2. (Rejoined) A method according to claim 1, in which the step of distorting the shape of the foam material comprises stretching the foam material.

3. (Rejoined) A method according to claim 2, in which the foam material is stretched in one direction only.

4. (Rejoined) A method according to claim 2, in which the foam material is permanently deformed.

5. (Rejoined) A method according to claim 1, in which the step of removing the foam material comprises heating the material.

6. (Rejoined) A method according to claim 5, in which the method comprises a first heating step in which the foam material is removed and a second, subsequent, heating step in which the ceramic slip is heated to a higher temperature and is sintered.

7. (Rejoined) A method according to any preceding claim, in which the step of coating the walls of the cells of the foam material with a ceramic slip includes the steps of

immersing the foam material in the ceramic slip and draining some of the ceramic slip from the foam material.

8. (Rejoined) A method according to claim 7, in which the immersing and draining steps are repeated.

9. (Rejoined) A method according to claim 7, in which the foam material is mechanically compressed and then allowed to expand while it is immersed in the ceramic slip.

10. (Rejoined) A method according to claim 7, in which air is directed onto the coated foam material to inhibit the formation of closed cells.

11. (Rejoined) A method according to claim 1, in which the foam material is a polymeric foam material.

12. (Rejoined) A method according to claim 1, in which the ceramic base substitute material has a macroporosity in the range of 40 to 70%.

13. (Rejoined) A method according to claim 1, in which more than half of the macroporosity of the material is provided by pores having an equivalent diameter in the range of 150 to 450 μm.

14. (Currently Amended) A bone substitute material comprising a porous sintered ceramic, the porous sintered ceramic being composed from ~~one or more suitable bone substitute ceramics, such as~~ hydroxyapatite or tricalcium phosphate, and the porous sintered ceramic having approximately the form of a positive image of an open celled foam material, the walls defining the cells within the material being hollow such that each wall defining cells has two wall ceramic material layers and a hollow cavity extending between the two wall ceramic material layers, wherein the cellular structure is orientated such that the cells are elongated, having ~~generally have a length in one direction greater than a length in a perpendicular direction~~ a length in one direction greater than their lengths in the two other perpendicular directions and wherein the bone substitute material has a breaking stress of more than 1 MPa.

15. (Cancelled)

16. (Currently Amended) A bone substitute material according to claim 14 ~~15~~, in which the cells have a length in one direction more than 20% greater than their length in the two other perpendicular directions.

17. (Previously Presented) A bone substitute material according to claim 14, in which the material has a macroporosity in the range of 40 to 70%.

18. (Original) A bone substitute material according to claim 14, in which more than half of the macroporosity of the material is provided by pores having an equivalent diameter in the range of 150 to 450 μm.

19 - 51. (Cancelled)

52. (Rejoined, Currently Amended) A method of forming a bone graft comprising the steps of implanting a bone substitute material ~~that is approximately in the form of a positive image of an open celled foam material~~ into or onto a bone, wherein the bone substitute material comprises a porous sintered ceramic, the porous sintered ceramic being composed from hydroxyapatite or tricalcium phosphate, and the porous sintered ceramic having approximately the form of a positive image of an open celled foam material, the walls defining the cells within the material being hollow such that each wall defining cells has two wall ceramic material layers and a hollow cavity extending between the two wall ceramic material layers, wherein the cellular structure is orientated such that the cells are elongated, having ~~generally have~~ a length in one direction greater than ~~a length in a perpendicular direction~~ their lengths in the two other perpendicular directions and wherein the bone substitute material has a breaking stress of more than 1 MPa.

53 - 56. (Cancelled)

57. (Rejoined) A method according to claim 52, in which the bone substitute material is in the form of a cylindrical block of circular cross-section.

58. (Rejoined) A method according to claim 52, in which the material is in the form of a preshaped block and is implanted into a correspondingly shaped space in or on the surface of a bone.

59. (Rejoined) A method according to claim 52, in which the material is housed in a cage or other structure which is then implanted.

60. (Rejoined) A method according to claim 58, in which the implant contributes to the structural strength of the bone.

61. Cancelled.